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Algorithmic Control Across the Employee Lifecycle

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Abstract. This paper examines the employee lifecycle, that is, HR managers' role in decision-making. In tourism, HR faces unique challenges, e.g. labor shortage, staff turnover, diversity management. Algorithmic management, driven by data, is introduced as significant but ethically complex management strategy. The uses LEGO Serious Play to gather insights from managers ($n = 17$) and identifies eight potential use-cases for algorithmic control along the employee lifecycle. Implications for tourism management and research are discussed.

Keywords: LEGO Serious Play · HRM · algorithmic control · AI

1 Introduction

The employee lifecycle, a fundamental concept in organizational management, encapsulates the entirety of an individual's journey within a company, encompassing a series of distinct stages from recruitment of new employees to termination of employment [1]. As discussed by [1] and [2], the employee lifecycle framework starts with the employee attraction and recruitment phase, involving sourcing, interviewing, and selecting candidates. Once selected, the onboarding process begins, facilitating the smooth integration of new hires into the company's culture and policies [3]. Subsequent stages encompass career development and performance management, ensuring employees are equipped with the necessary skills to thrive and contribute effectively to the company's goals. Finally, the lifecycle concludes with the offboarding or separation phase, which could be due to retirement, resignation, or termination of employment and involves knowledge transfer [2]. Critically, throughout the employee lifecycle, human resource (HR) managers monitor, evaluate and develop talent, making managerial decisions that impact the employee experience [3]. In terms of line management, common issues in hospitality and tourism include maintaining service quality during peak periods of demand, addressing high turnover rates, balancing cost control with guest satisfaction, and navigating cultural diversity [4]. These issues impact operational efficiency, customer experiences, and employee morale, requiring adept leadership and tailored strategies to harmonize customer expectations, employee engagement, and financial goals within the dynamic and diverse context of the tourism industry [5].

Within the context of HRM, the concept of algorithmic management, also known as algorithmic control, has emerged as a significant phenomenon, whereby AI algorithms are increasingly used to supervise, regulate, and optimize various facets of employee interactions and operations [6], both in general and in the context of tourism [7]. Employed across the employee lifecycle, this mode of organizational management capitalizes on data-driven mechanisms to enhance decision-making efficiency and operational efficacy. Notwithstanding its potential advantages, algorithmic management introduces intricate ethical considerations concerning employee autonomy, privacy, and the potential for reinforcing systemic biases [8]. Against this backdrop, this study seeks to better understand managers' views of the optimal application of algorithmic control practices in specific use-cases across the employee lifecycle. Leveraging a qualitative approach, the study seeks to address research questions (RQs): RQ1: When and in what situations should HRM decisions be made by an algorithm? RQ2: What kind(s) of HRM decisions should be left for human decision-makers? Implications for tourism management are discussed, along with avenues for future research.

2 Algorithmic Control Across the Employee Lifecycle

Algorithmic human resource management refers to “the use of software algorithms that operate on the basis of digital data to augment HR-related decisions and/or to automate HRM activities” [9]. For example, in the context of recruitment and selection, algorithmic management is illustrated by the automation of processes such as resume screening and video interview analysis in order to streamline candidate evaluation, thus expediting the initial stages of recruitment [10]. However, this efficiency must be weighed against concerns of algorithmic bias and the potential exclusion of candidates not conforming to e.g. predetermined keyword patterns. In their seminal work [6] argue that algorithms have become a central tool in managing and coordinating work processes, reshaping power dynamics between employers and employees. The authors highlight six different mechanisms of algorithmic control, i.e. directing employees by restricting and recommending, evaluating employees by recording and rating, and disciplining employees by rewarding and replacing. Effectively, the use of algorithms in HRM imposes performance metrics which can influence worker behavior and productivity. Critically, these metrics often prioritize efficiency over employee experience.

Indeed, [11] stress the importance of addressing algorithmic biases and developing more transparent and equitable AI-driven HR practices to ensure fairness and diversity across the employee lifecycle. The deployment of such systems necessitates a nuanced appraisal of employee consent, the ethical boundaries of surveillance, and the establishment of safeguards against unintended consequences. As discussed by [9], while algorithmic management bears the potential to optimize operational aspects of the employee lifecycle, its ethical and human-centric dimensions merit rigorous contemplation to harmonize the imperatives of efficiency and equitable treatment of employees.

3 Method

To address its research questions, this study used LEGO Serious Play (LSP) to collect qualitative data from service managers. LSP is a workshop facilitation technique that employs LEGO bricks as a tool for collaborative problem-solving and creative thinking, with the aim of facilitating deeper qualitative insights in the form of stories and metaphors. Participants construct physical models with LEGO bricks to externalize complex ideas, e.g. the use of AI in tourism [12]. In this study, two LSP workshops were conducted during spring 2023 with 4 (workshop 1) and 15 (workshop 2) managers, with a total $n = 19$ managers across the two workshops. The workshops were facilitated by two LSP certified facilitator-researchers. The workshops were conducted in English, and a workshop facilitation guide was prepared and tested beforehand in a pre-test with 17 managers. After the pre-test the facilitation guide was revised slightly, whereby one building exercise was split into two separate exercises. Overall, the workshops lasted for 2 h and consisted of three rounds of LEGO building, story sharing, reflection and discussion: 1) warm-up exercise (10 min), 2) exercise about participant's future orientation (20 min), and 3) three separate exercises about algorithmic management across the employee lifecycle (3x30 min). Following [1, 2], the employee lifecycle was seen to consist of three major stages: 1) Attracting suitable candidates, recruitment, onboarding, 2) line management, continuous learning, remuneration, 3) appraisals, promotion, termination of employment. Against this framework, the workshops challenged participants to build models and discuss changes to the employee lifecycle chronologically. The discussions after each building stage were audio recorded, automatically transcribed with Otter.ai and manually anonymized. The data was analyzed thematically, drawing on a priori themes established in [1, 2, 6].

4 Findings

4.1 Attracting Suitable Candidates, Recruitment, Onboarding

In terms of the first stage of the employee lifecycle, participants highlighted three potential use-cases for algorithmic HRM: 1) screening candidates to ensure fit, 2) automated progress notification and feedback, and 3) monitoring performance during probation. First, in terms of screening, participants suggested filtering CVs and cover letters using AI based on specific criteria, e.g. driver's license, hygiene certification, academic degree, specific IT skills, target salary, or more soft factors, e.g. benefits that the candidate proposes to bring to the company. Further, several participants suggested a tiered system for filtering candidates, e.g. according to low, medium or high fit with the position and company. Interestingly, participants also suggested that AI could help improve diversity in hiring: *"Not just demographic diversity, but diversity of ideas, values [...] Analyzing the bios or personal statements or open applications from this point of view"* (P9). Second, in terms of progress notifications and feedback, participants commented that AI could be used on one hand to give automated updates on how the recruitment process is progressing, and on another give personalized feedback for those who were not selected for the next part of the recruitment process, i.e. explaining why they were not selected or how they could improve. Third, in terms of probation monitoring, participants suggested that

AI could be used for identifying any gaps in employees' current skills and knowledge, in order to suggest personalized training for them, either internally or externally.

4.2 Line Management, Continuous Learning, Remuneration

For the second stage of the employee lifecycle, participants suggested using AI for 1) tracking KPIs and implementing reward systems, and 2) ensuring compliance with industry-specific legal requirements. In terms of tracking KPIs, participants noted that *"AI could monitor your daily tasks, and based on this give personalized suggestions for how you could improve, like a coach"* (P7) and *"there could be an automated bonus system, where you have pre-determined criteria, e.g. a certain average customer review rating, that could automatically trigger a bonus, making it more fair and efficient"* (P15). Interestingly, besides tracking KPIs and assigning bonuses, participants stressed that AI could be used to make suggestions for improving wellbeing to ensure that employees stay mentally and emotionally well. Finally, for ensuring continued compliance, participants suggested that AI could be used to make sure employees' certificates are up-to-date, e.g. regarding health & safety or hygiene, that need to be renewed but might be forgotten. AI could be used to send automated notifications for employees when their certificates are due for renewal.

4.3 Appraisals, Promotion, Termination of Employment

For the third stage of the employee lifecycle, participants suggested using AI for 1) providing promotion recommendations, 2) capturing leaving employees' tacit knowledge, and 3) facilitating difficult conversations. In terms of recommendations for promotion, participants saw that AI could be used for mapping the motivation and skills gaps of employees, including their goals for career development. Based on these, AI could be used to suggest development pathways for the employee, e.g. which promotion to go for, or perhaps which department to move to within the company for better long-term fit. However, participants also noted the difficulty of implementing a fully data-driven HR approach in tourism: *"In a world where everything could be measured and compared, this would make promotion by AI fairer. But creating a world where everything is measured, especially in the tourism industry, it's impossible"* (P12).

Participants also considered how AI could be used to proactively capture the tacit knowledge of employees who were leaving, e.g. retiring, or thinking of leaving. As put by participants: *"When people are retiring, AI can be used to check that everything has been done according to the law, and also for capturing the tacit knowledge"* (P10). Finally, participants noted how AI could be used for whistleblowing: *"AI could be used for getting people to talk about the negative feelings they have about their work. It's sometimes difficult to get to the truth, especially talking about difficult topics like abusive behavior or unfair treatment, face to face. So using AI as an interface for capturing these"* (P8).

5 Discussion, Conclusion and Future Research

Algorithmic HRM offers potential advantages and challenges across the tourism employee lifecycle, characterized e.g. by high turnover, seasonality and temporary employment contracts [5]. In recruitment, AI could streamline candidate screening, thus reducing the workload of recruiting managers [10]. Automated progress updates and personalized feedback could also be used to enhance the candidate experience. For line management, AI could be used e.g. to track KPIs, automating rewards and offering development suggestions. For promotions, AI could recommend pathways based on motivation, skills gaps and career goals. AI could also be used to capture the tacit knowledge of e.g. retiring employees. However, while these benefits are promising, ethical concerns like data privacy and fairness require careful consideration and future research for the responsible integration of algorithmic HRM in tourism management [7, 8]. Future research should also consider human-AI collaboration in HRM.

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